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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/614,794	07/12/2000	Haldane S. Henry	SC11152ZP	2567

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MOTOROLA, INC.
CORPORATE LAW DEPARTMENT - #56-238
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EXAMINER

OWENS, DOUGLAS W

ART UNIT PAPER NUMBER

2811

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/614,794

Applicant(s)

HENRY ET AL.

Examiner

Douglas W Owens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-21 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-10, 14 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 6, 11, 12, 15-17 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9, 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Appeal Brief

1. The finality of the previous office action is withdrawn.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gap between a portion of the airbridge and the first electrically insulative layer, particularly, the first electrically insulative layer, as required in claims 14 and 20 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation, "...forming the insulative layer further comprises:...". The scope of the claim is vague since it cannot be determined if the claim is referencing the insulative layer of claim 20, or the insulative layer introduced in claim 21.

Claim is
fine

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 5, 7 – 10, 13, 14 and 18 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,268,262 to Loboda.

Regarding claims 1 and 14, Loboda teaches an electronic component (Fig. 10) comprising:

an airbridge with a first layer (12) and a second insulative layer (13);
wherein a portion of the second layer is over the first layer, wherein;
a gap (14) exists between a portion of the airbridge and the substrate;
the airbridge is conductive (Col. 2, lines 41-48 and Col. 4, lines 42-48); and
the first layer is less resistive than the second layer.

Loboda does not explicitly teach a thickness of the second layer is less than a combined thickness of the first layer and the gap. In Fig. 10, Loboda teaches an airbridge, wherein it is clearly the intention that the second layer (13) has a thickness that is less than the combined thickness of the gap (14) and the first layer (12). While the drawings are not drawn to scale, and the *precise proportions* cannot be determined, the *intended approximate proportions* are reasonably conveyed in the drawing. It is not a reasonable assumption to suppose that the second layer (13) should be thicker than a

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combined thickness of the gap (14) and the first layer (12), since this would grossly distort the device away from the intended proportions.

Loboda does not explicitly teach a substrate. It would have been obvious to one of ordinary skill in the art to provide a substrate, since it is a necessary component of a silicon based device.

Loboda does not explicitly teach a first electrically insulative layer overlying the substrate. Loboda teaches that nearly any known semiconductor device may be used with the invention (Col. 2, lines 35 – 40). It would have been obvious to one of ordinary skill in the art to use a well-known device, such as a MOS transistor, since Loboda teaches that nearly any known semiconductor device may be used with the invention. A MOS transistor would have required that a first insulative layer be formed on the substrate.

Regarding claim 2, Loboda teaches an electronic component, wherein the second layer is a passivation layer (Col. 4, lines 49 – 50).

Regarding claim 3, Loboda teaches an electronic component, wherein the second layer is harder than the first layer.

Regarding claim 5, Loboda does not explicitly teach an electronic component, wherein a gap exist between a portion of the airbridge and the substrate, and the thickness of the second layer is less than fifty percent of that of the first layer and the gap combined. Loboda teaches (Fig. 10) a device, wherein approximate proportions are illustrated. Forming the second layer to have a thickness that is more than fifty

percent of the first layer and gap combined would have required a gross distortion of approximated proportions.

Regarding claim 7, Loboda teaches an electronic component, wherein the second layer is absent underneath a center portion of the airbridge.

Regarding claim 8, Loboda teaches an electronic component, wherein an unsealed gap exists underneath a portion of the airbridge.

Regarding claims 9 and 19, Loboda does not teach an airbridge wherein the second layer has a compressive stress level of 0 to 200 MegaPascals. The stress level of the second layer would have been dependent upon the thickness. It would have been within ordinary skill in the art to arrive at the optimal thickness through routine experimentation.

Regarding claim 10, Loboda teaches an electronic component, wherein a third layer (10) is disposed beneath the first layer, wherein the third layer is less conductive than the first layer.

Regarding claim 13, Loboda teaches an electronic component, wherein the second layer of the airbridge is insulative.

Regarding claim 18, Loboda teaches a semiconductor component, wherein the second electrically insulative layer is absent underneath a center portion of a width of the airbridge.

Regarding claim 20, Loboda teaches a method of manufacturing an electronic component, comprising (Figs. 1 – 10):

forming a first layer (12) to form a first portion of an airbridge;

forming a first portion of a second layer (13) over the first layer to form a second portion of the airbridge;

wherein:

the airbridge is electrically conductive; and

the first layer is less resistive than the second layer; and

forming a gap (14) between the airbridge and substrate.

Loboda does not explicitly teach forming a substrate. It would have been obvious to one of ordinary skill in the art to provide a substrate, since it is a necessary component of a silicon based device.

Loboda does not explicitly teach forming a first electrically insulative layer overlying the substrate. Loboda teaches that nearly any known semiconductor device may be used with the invention (Col. 2, lines 35 – 40). It would have been obvious to one of ordinary skill in the art to use a well-known device, such as a MOS transistor, since Loboda teaches that nearly any known semiconductor device may be used with the invention. A MOS transistor would have required that a first insulative layer be formed on the substrate.

Regarding claim 21, as well as an indefinite claim can be understood, Loboda teaches a method further wherein:

forming the first layer (12) comprises:

providing the first layer comprised of an electrically conductive material;

forming the second layer comprises:

providing the second layer comprised of an electrically insulative material.

Loboda does not explicitly teach forming a semiconductor device at least partially located within the substrate. Loboda teaches that nearly any known semiconductor device may be used, as discussed above. A well-known device, such as a MOS transistor, would have necessarily been formed at least partially within the substrate.

The electrically insulative layer that forms a portion of the airbridge would have inherently been over the semiconductor device since that is the purpose of the airbridge.

Allowable Subject Matter

7. Claims 6, 11, 12, 15 – 17 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1 – 3, 5, 7 – 10, 13, 14 and 18 – 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for

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the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
May 5, 2003

Tom Thomas

TOM THOMAS
SUPERVISORY PATENT EXAMINER
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